REMARKS

Claims 1-21 are pending in the application. Claims 15-21 are withdrawn from consideration.

The Examiner objects to the drawings, specification, and the claims. Claims 6 and 13 are rejected under 35 U.S.C. § 112, first paragraph. Claims 4-6 and 11-13 are rejected under 35 U.S.C. § 112, second paragraph. Claims 1-4, 7-11 and 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Yoshio *et al.* (JP10-142143A; hereinafter "Yoshio"). Claims 8-9 and 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Asu *et al.* (JP10-142144A; hereinafter "Asu"). Claims 5 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Asu or Yoshio in view of Anno (JP 355023433A). Applicants submit the following in traversal of the objections and the claim rejections.

Objection to the Drawings

The Examiner objects to the drawings under 37 C.F.R. § 1.83(a) because the drawings fail to show "a vertically elongate plating solution dwell portion having cross sectional areas of not less than two times of the cross sectional areas of a sampling pipe" and "a trap mechanism for preventing fine bubbles in said plating solution from being fed into said analytical cell," as described in the specification.

Applicants respectfully submit that Fig. 9 fully shows an exemplary embodiment of the invention wherein a vertically elongate plating solution dwell portion having a cross sectional areas of not less than two times the cross sectional areas of a sampling pipe is shown. The section of the specification corresponding to Fig. 9 discloses that "the piping up to the pH cell is 3 mm in inside diameter, and the pH cell 12 is 14 mm in inside diameter." Page 18, line 29 -

page 19, line 2. The schematic drawings of Fig. 9 fully shows a drawing of a sampling pipe extending from the supply portions V1-V5 to the pH cell 12 having a cross sectional area of not less than two times of the cross sectional area of the sampling pipe.

In addition, "a trap mechanism for preventing fine bubbles in said plating solution from being fed into said analytical cell," is fully shown in Fig. 9. In conjunction with the depiction of the pH cell 12 and the sampling pipe shown in Fig. 9, the specification also discloses that the pH cell 12 reduces the amount of bubbles in the plating solution that is supplied to the absorbance cell 10a. *See* page 28, lines 1 - 18.

With the above, the drawings comply with 37 C.F.R. § 1.83(a).

Objection to the Specification

The Examiner objects to the Specification for not providing a written description of the invention and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to practice the invention in its best mode. Specifically, the Examiner states that it is hard to associate the vertically elongate plating solution dwell portion with the disclosures on page 8, lines 26-37 and on page 18, line 29 - page 19, line 2 of the Specification. Further, the Examiner states that the structure described on pages 18 and 19 are not apparent and that the structure of the apparatus recited in claims 6, 13, and 20 is not disclosed in the Specification in clear and exact terms.

In view of the Examiner's objection, Applicants amend the paragraph bridging pages 18 and 19 in the manner shown above for clarity. The changes are fully supported in the Specification. *See* page 28, lines 1-18.

Objection to the Claims

Claims 5, 7-8, 12 and 14 are objected to under 35 U.S.C. § 1.75(c) as being of improper dependent form for failing to further limit the subject matter of previous claims.

Applicants respectfully submit that claims 5 and 12 comply with 35 U.S.C. § 1.75(c).

Claims 7 and 14 are objected to for not further limiting the structure of the automated system recited in the parent claims because the electroless composite plating solution is not recited in the body of the parent claims. Applicants respectfully submit that the recitation of the electroless composite plating solution in the preamble provides proper antecedent basis and thus, the recitations of claims 7 and 14 properly recite additional features of the invention.

Double Patenting

With the above changes to claims 9-14, claim 10 complies with 37 C.F.R. § 1.75 because claim 10 is not a substantial duplicate of claim 3. The base claims from which claims 3 and 10 depend from, namely claims 1 and 8, are different in scope. Therefore, claims 3 and 10 are not substantial duplicates and any double patenting rejection of claims 3 and 10 is improper.

Rejection of Claims 6 and 13 under 35 U.S.C. § 112, First and Second Paragraphs

The Examiner states that claims 6 and 13 fail to comply with the enablement requirement and are indefinite. Applicants submit that "a vertically elongate plating solution dwell portion having a cross sectional area of not less than two times of the cross sectional area of a sampling pipe," is clearly disclosed in the Specification, as shown in the above discussions regarding the Examiner's objections to the Specification and the claims. For example, the disclosures of the Specification on page 28, lines 1-18, show that claims 6 and 13 comply with § 112, first and second paragraphs.

The Examiner also states that "a measuring time table" as recited in claims 4 and 11 is indefinite. Applicants submit that claims 4 and 11 comply with 35 U.S.C. § 112, second paragraph.

Applicants also submit that claims 5 and 12 comply with 35 U.S.C. § 112, second paragraph.

Lastly, the Examiner objects to claim 8 for not providing some additional structural limitation to the claimed absorbance measuring unit. Applicants submit that claim 8 recites sufficient structural limitation because the claim recites an absorbance measuring unit comprising an absorbance cell. Moreover, functional features in a claim are not per se improper in the context of apparatus claims. *See* MPEP § 2173.05(g). Thus, claim 8 complies with § 112, second paragraph.

Rejection of Claims 1-4, 7-11 and 14 under § 102(b) by Yoshio

Applicants respectfully submit that claim 1 is patentable because Yoshio fails to disclose or suggest all elements of the claim. Claim 1 recites:

> An automatic analysis and control system . . . comprising:
> means for measuring transmissivity or absorbance . . . , and
> means for calculating the objective concentration from the measured values and displaying the calculation results.

For example, Yoshio fails to disclose, *inter alia*, means for calculating the objective concentration from the measured values and displaying the calculation results. Although the Examiner argues that Yoshio discloses a computer, Applicants respectfully request the Examiner to point out where a computer is disclosed in Yoshio. To the contrary, Yoshio is merely directed to a method for measuring nickel concentration and does not disclose or suggest the claimed

means for calculating the objective concentration from the measured values *and* displaying the results.

For at least the reasons submitted for claim 1, claims 2-4 and 7 are patentable.

Claim 8 is patentable for at least the reasons similar to those submitted for claim 1.

Claims 9-11 and 14, which depend from claim 8, are patentable at least by virtue of their dependencies from claim 8.

Claims 3 and 10 are patentable because Yoshio fails to disclose or suggest, for example, an automatic analysis and control wherein the combination of the measurement wavelengths is obtained by *selecting at least one measurement wavelength in a wavelength range of 250 to 350 nm or 450 to 550 nm*, and selecting at least one other measurement wavelength not overlapping with said at least one measurement wavelength in a wavelength range of 350 to 450 nm or 550 to 880 nm, in combination with other elements of the claims.

In addition, claims 4 and 11 are patentable because Yoshio fails to disclose or suggest a standing time of not less than 15 seconds, in combination with other elements of the claims. Although the Examiner states that Yoshio discloses a computer and that a 15 second delay is inherently disclosed, there is nothing in Yoshio to suggest that a standing time of not less than 15 seconds is *necessarily* disclosed in the reference. Therefore, Yoshio fails to inherently disclose all aspects of claims 4 and 11.

Applicants also submit that the purposes and the effects of the present invention clearly differs from Yoshio, the purposes and effects which are explained as follows.

In general, if electroless nickel plating is used continuously, impurities such as phosphorous acid that is a reaction by-product, are accumulated and these impurities badly

influence the absorbance relating to nickel ion. The technology of Yoshio corresponds to the improvement of the errors as the number of turns progress. Figure 4 of Yoshio show that the absorbance changes although the nickel concentrations have a fixed configuration of the extinction curve of the electroless nickel plating liquid. Specifically, paragraph [0009] of Yoshio explains that although an extinction curve is in the configuration of the continuous line of Figure 4 at the time of an initial make-up of electrolytic bath (turn number "0"), it changes to the configuration of the dot line in Figure 4 at the time of turn number "5.07". That is, although the concentration of nickel is continuous, an absorbance E is changed as the number of turns progresses. In view of the above-described shortcomings, the purpose of Yoshio's invention is to prevent the change of the absorbance with time. On the other hand, the present invention is made in view of the description of the present specification at page 4, line 20 to page 5, line 6:

> In the case of measuring a composite plating solution, however, the incident light is not only transmitted straight and absorbed but also reflected, diffracted or scattered by the suspended particles. The light reflected, diffracted or scattered by the suspended particles leads to apparent decrease of the transmitted light, and cannot be distinguished from the decrease of the transmitted light due to absorption by the objective component, resulting in that the amount of the objective component is erroneously judged to be more than the real amount. In addition, the degree of influence of the suspended particles varies depending on the kind, particle size distribution and concentration of the suspended particles, and depending on various factors of the plating solution. For example, when the plating solution is specified, the influence of the suspended particles is comparatively stabilized, so that the concentration of the objective component can be measured with comparatively good accuracy by preliminarily deeming a fixed value as the decrease of transmissivity due to turbidity. However, the electroless plating solution shows a large variation in composition as it is used, and influences of the variation must be corrected, so that the method of allowing for the influence of turbidity by use of a fixed value is limited in practicality.

When Yoshio uses composite plating, the two absorbance curves are drawn (as shown in Figure 4) as values influenced by the light reflected, diffracted or scattered by the suspended particles, which are not the exact values of nickel concentration. That is, an aspect of the present invention is to provide an automatic analysis and control system for electroless composite plating solution having the elements recited in claim 1, in a technique of analyzing an electroless composite plating solution, by which it is possible to solve the problem of lowered analytical accuracy due to the presence of suspended particles.

Yoshio discloses the wavelengths having two different ranges (600 to 650 nm and 750 to 800 nm). However, Yoshio does not disclose or teach that two or more different wavelength may be used. In an example of Yoshio, the concentration of nickel is measured by only a single wavelength. Regarding the claimed element of measuring transmissivity or absorbance by at least two or more different wavelengths, the present specification discloses on page 14, line 28 to page 15, line 4, that:

> In the electroless composite plating, however, the concentration of dispersed particles and turbidity varies due to various causes other than the preset conditions, for example, such factors as consumption of the plating solution and conditions of sampling, so that large errors are generated unless the factors are grasped at times with a certain degree of accurateness at the time of measurement and reflected on the results of calculation. As a method of coping with this problem, the method constituting the basis of the present invention, namely, the method of obtaining the two unknowns of Ni concentration and turbidity due to the presence of dispersed particles from the results of measurement at least two wavelengths by solving simultaneous equations, is needed.

Therefore, Yoshio fails to disclose and teach the importance of the claimed elements in claim 1 and cannot disclose all elements of the claim.

Rejection of Claims 8-9 and 11 under § 102(b) by Asu

Applicants have amended claim 8 to incorporate some of the subject matter of claim 13. In the Office Action, claim 13 is not rejected over prior art but is rejected under § 112.

Applicants submit that claim 8 is patentable over Asu because Asu fails to disclose:

> An automatic analysis and control system . . . comprising:
> an absorbance measuring unit comprising an absorbance cell, for measuring transmissivity or absorbance of *at least two or more different wavelengths* . . . ;
> and
> a controller . . . ,
> wherein a vertically elongate plating solution dwell portion having a cross sectional area of not less than two times of the cross sectional area of a sampling pipe is provided in a course of a sampling passage for introducing said electroless composite plating solution into said analytical cell, an inlet to said plating solution dwell portion is provided at an upper portion, and an outlet from said plating solution dwell portion is provided at a lower portion.

Claims 9 and 11, which depend from claim 8, are patentable for at least the reasons submitted for claim 8.

Specifically, Asu fails to disclose using at least two or more different wavelengths. Asu changes the amount of projection light and the amount of the transmitted light by operating the light source. The intensity of the light is changed in Asu, at the *same* wavelength. Changing the intensity of the light is different from changing the wavelength of light. Therefore, Asu fails to anticipate claim 1 because it is impossible to achieve some of the purposes of the present invention by changing the intensity of the light.

Rejection of Claims 5 and 12 under § 103(a) over Asu or Yoshio in view of Anno

Claims 5 and 12, which depend from claims 1 and 8, are patentable for at least the reasons submitted for their respective base claims.

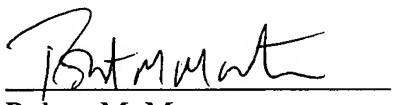
In addition, Applicants submit that the Examiner has failed to establish a *prima facie* case of patentability. Anno relates to biochemistry, which is a field entirely different from electroless plating. Moreover, the target for measuring in Anno is serum, which is quite different from the present invention. Therefore, one skilled in the art would not modify Asu or Yoshio with Anno.

Furthermore, Anno discloses that it is difficult to set two systems of light path because the devices become larger and the cost becomes more expensive. Thus, the description in Anno teaches away from the claim recitations, i.e., measuring transmissivity or absorbance by at least two or more different wavelengths.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Robert M. Masters
Registration No. 35,603

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: May 4, 2005